AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (Previously presented): A system for purging sulfate from a NOx trap associated with oxidation catalyst-forming means, and integrated in an exhaust line of a motor vehicle diesel engine, in which the engine is associated with common manifold or "rail" fuel feeder means for feeding fuel to the cylinders of the engine and adapted, by modifying engine operation control parameters, to cause the engine to switch between operating with a lean mixture and with a rich mixture, wherein the fuel feeder means are adapted to define three strategies for controlling the operation of the engine with a lean mixture for the purpose of obtaining different temperature levels in the exhaust line, the first strategy being referred to as a normal strategy and corresponding to normal operation of the engine, the second strategy being referred to as a level 1 strategy, and the third strategy being referred to as a level 2 strategy, the temperature level obtained by applying the third, level 2 strategy being higher than that obtained by applying the second, level 1 strategy, which is itself higher than that obtained by applying the first, normal strategy, and wherein the fuel feeder means are connected to:

· means for detecting a request to purge sulfate so as to control the feeder means in order to engage operation of the engine in the second, level 1 strategy;

· means for monitoring the activation state of the catalyst-forming means to engage the third, level 2 strategy;

· means for acquiring the temperature level in the exhaust line to engage operation of the engine with a rich mixture when this temperature level exceeds a predetermined target temperature during a predetermined first time period or for switching off sulfate purging if this temperature is not reached before a predetermined maximum second time period expires; and

· means for monitoring the rich mixture operation of the engine:

· to cause the engine to operate in lean mixture in the third, level 2 strategy at the end of a third predetermined time period;

· to cause the engine to operate with a lean mixture in a third, level 2 strategy if the temperature level in the exhaust line drops below a predetermined low temperature threshold during a fourth time period;

· to cause the engine to operate with a lean mixture in a second, level 1 strategy if the temperature level in the exhaust line exceeds a predetermined high temperature threshold during a fifth time period;

· to maintain the engine operating in this second, level 1 strategy during a predetermined forcing sixth time period or until the moment when the temperature level in the exhaust line has dropped back below the high temperature threshold minus an hysteresis offset during a seventh time period;

· to cause the engine to operate with a lean mixture in a first, normal strategy when the temperature level in the exhaust line has not dropped back below the high temperature threshold minus the hysteresis offset at the end of a maximum cooling eighth time period, until the temperature level in the exhaust line has dropped back below said high temperature threshold

minus the hysteresis offset during the seventh time period;

· to maintain the operation of the engine in lean mode in one of the following strategies: level 2, level 1 or normal, as defined above, during a ninth time period; and

· at the end of said ninth time period, if the temperature level in the exhaust line lies between the predetermined target temperature and the high temperature threshold, to loop control of the engine back starting from operation with a rich mixture until a request is detected to stop sulfate purging, said request being detected by corresponding detector means.

2. (Previously presented): A system according to claim 1, wherein the threshold temperatures are calibratable.

3. (Previously presented): A system according to claim 1, wherein the time periods are calibratable.

4. (Previously presented): A system according to claim 1, including means for issuing the sulfate purging request and the request to stop sulfate purging.

5. (Previously presented): A system according to claim 1, wherein the means for monitoring the activation state of the catalyst-forming means and the temperature level acquisition means in the exhaust line comprise temperature sensors.

6. (Previously presented): A system according to claim 1, wherein the fuel feeder means are adapted to take account of aging of the trap.

7. (New): A system according to claim 2, wherein the time periods are calibratable.

8. (New): A system according to claim 2, including means for issuing the sulfate purging request and the request to stop sulfate purging.

9. (New): A system according to claim 3, including means for issuing the sulfate purging request and the request to stop sulfate purging.

10. (New): A system according to claim 7, including means for issuing the sulfate purging request and the request to stop sulfate purging.

11. (New): Method for purging sulfate from a NOx trap associated with oxidation catalyst, and integrated in an exhaust line of a motor vehicle diesel engine, in which the engine is associated with common manifold or "rail" fuel feeder for feeding fuel to the cylinders of the engine and adapted, by modifying engine operation control parameters, to cause the engine to switch between operating with a lean mixture and with a rich mixture, wherein the fuel feeder are adapted to define three strategies for controlling the operation of the engine with a lean mixture for the purpose of obtaining different temperature levels in the exhaust line, the first strategy being referred to as a

normal strategy and corresponding to normal operation of the engine, the second strategy being referred to as a level 1 strategy, and the third strategy being referred to as a level 2 strategy, the temperature level obtained by applying the third, level 2 strategy being higher than that obtained by applying the second, level 1 strategy, which is itself higher than that obtained by applying the first, normal strategy,

said method comprising:

· detecting a request to purge sulfate so as to control the feeder in order to engage operation of the engine in the second, level 1 strategy;

· monitoring the activation state of the catalyst to engage the third, level 2 strategy;

· acquiring the temperature level in the exhaust line to engage operation of the engine with a rich mixture when this temperature level exceeds a predetermined target temperature during a predetermined first time period or for switching off sulfate purging if this temperature is not reached before a predetermined maximum second time period expires; and

· monitoring the rich mixture operation of the engine:

· to cause the engine to operate in lean mixture in the third, level 2 strategy at the end of a third predetermined time period;

· to cause the engine to operate with a lean mixture in a third, level 2 strategy if the temperature level in the exhaust line drops below a predetermined low temperature threshold during a fourth time period;

· to cause the engine to operate with a lean mixture in a second, level 1 strategy if the temperature level in the exhaust line exceeds a predetermined high temperature threshold

during a fifth time period;

· to maintain the engine operating in this second, level 1 strategy during a predetermined forcing sixth time period or until the moment when the temperature level in the exhaust line has dropped back below the high temperature threshold minus an hysteresis offset during a seventh time period;

· to cause the engine to operate with a lean mixture in a first, normal strategy when the temperature level in the exhaust line has not dropped back below the high temperature threshold minus the hysteresis offset at the end of a maximum cooling eighth time period, until the temperature level in the exhaust line has dropped back below said high temperature threshold minus the hysteresis offset during the seventh time period;

· to maintain the operation of the engine in lean mode in one of the following strategies: level 2, level 1 or normal, as defined above, during a ninth time period; and

· at the end of said ninth time period, if the temperature level in the exhaust line lies between the predetermined target temperature and the high temperature threshold, to loop control of the engine back starting from operation with a rich mixture until a request is detected to stop sulfate purging, said request being detected by a corresponding detector.

12. (New): Method according to claim 11, wherein the threshold temperatures are calibratable.

13. (New): Method according to claim 11, wherein the time periods are calibratable.

14. (New): Method according to claim 11, including issuing the sulfate purging request and the request to stop sulfate purging.

15. (New): Method according to claim 11, comprising using temperature sensors to monitor the activation state of the catalyst and acquire the temperature level in the exhaust line.

16. (New): Method according to claim 11, wherein the fuel feeder is adapted to take account of aging of the trap.

17. (New): Method according to claim 12, wherein the time periods are calibratable.

18. (New): Method according to claim 12, including issuing the sulfate purging request and the request to stop sulfate purging.

19. (New): Method according to claim 13, including issuing the sulfate purging request and the request to stop sulfate purging.

20. (New): Method according to claim 17, including issuing the sulfate purging request and the request to stop sulfate purging.